

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1 1. (Currently Amended) A method comprising:
2 establishing multiple sessions with a database system, each session associated
3 with at least one transaction;
4 identifying transactions that operate on the same set of one or more tuples;
5 re-allocating transactions between or among the sessions such that the identified
6 transactions that operate on the same set of one or more tuples are allocated to one of the
7 sessions;
8 identifying statements in a ~~first transaction~~ particular one of the transactions that
9 specify modification operations that are commutative and associative;
10 combining the identified statements into one statement; and
11 submitting the one statement to ~~[[a]]~~ the database system.

1 2. (Original) The method of claim 1, wherein identifying the statements comprises
2 identifying Structured Query Language (SQL) statements.

1 3. (Original) The method of claim 1, wherein combining the identified statements is
2 performed prior to submitting the one statement to the database system.

1 4. (Currently Amended) The method of claim 1, further comprising grouping plural
2 ones of the transactions into the ~~[[first]]~~ particular transaction.

1 5. (Currently Amended) The method of claim 4, wherein ~~[[the]]~~ establishing the
2 multiple sessions, identify the transactions, re-allocating the transactions, identifying the
3 statements, combining the identified statements, submitting the one statement, and grouping the
4 plural transactions are performed by a module separate from a database engine of the database
5 system.

1 6. (Currently Amended) The method of claim 1, wherein [[the]] establishing the
2 multiple sessions, identifying the transactions, re-allocating the transactions, identifying the
3 statements, combining the identified statements, and submitting the one statement are performed
4 by a module separate from a database engine of the database system.

1 7. (Currently Amended) The method of claim 6, wherein [[the]] identifying the
2 statements, combining the identified statements, and submitting the one statement are performed
3 by the module without first accessing data in relational tables.

1 8. (Currently Amended) The method of claim 1, further comprising switching an
2 order of statements in the [[first]] particular transaction to place the identified statements
3 adjacent to each other.

1 9. (Original) The method of claim 8, further comprising determining whether data
2 dependency exists between or among the identified statements prior to switching the order of the
3 identified statements.

1 10. (Original) The method of claim 1, wherein identifying the statements comprises
2 identifying statements $\langle t, b_1 \rangle$ through $\langle t, b_m \rangle$, m being greater than 1, where t represents a set of
3 one or more tuples, and b_1 through b_m represent respective modification operations on the set of
4 one or more tuples, and

5 wherein combining the identified statements comprises combining the identified
6 statements into statement $\langle t, c \rangle$, where c represents an aggregation of b_1 through b_m .

1 11. (Original) The method of claim 10, wherein combining the identified statements
2 comprises combining the identified statements into statement $\langle t, c \rangle$, where c represents an
3 addition of b_1 through b_m .

1 12. (Original) The method of claim 10, wherein combining the identified statements
2 comprises combining the identified statements into statement $\langle t, c \rangle$, where c represents a
3 multiplication of b_1 through b_m .

1 13. (Cancelled)

1 14. (Currently Amended) An article comprising at least one storage medium
2 containing instructions that when executed cause a controller to:

3 identify statements in a first transaction that specify modification operations on
4 values b_1 through b_m , m greater than 1, that are commutative and associative, each of the
5 modification operations applied on a set of one or more tuples;

6 combine the identified statements into one statement that specifies a modification
7 operation on a value c that is an aggregation of b_1 through b_m , the aggregation being one of
8 addition and multiplication; and

9 submit the one statement to a database system.

1 15. (Original) The article of claim 14, wherein combining the identified statements
2 comprises combining Structured Query Language (SQL) statements.

1 16. (Original) The article of claim 14, wherein combining the identified statements is
2 performed prior to submitting the one statement to the database system.

1 17. (Original) The article of claim 14, wherein the instructions when executed cause
2 the controller to further group plural transactions into the first transaction.

1 18. (Original) The article of claim 17, wherein the controller is separate from a
2 database engine of the database system.

1 19. (Original) The article of claim 18, wherein the identifying, combining, and
2 submitting are performed by the controller without first accessing data in relational tables stored
3 in the database system.

1 20. (Original) The article of claim 14, wherein the instructions when executed cause
2 the controller to switch an order of statements in the first transaction to place the identified
3 statements adjacent to each other.

1 21. (Cancelled)

1 22. A system comprising:
2 an interface to receive first queries from a client system; [[and]]
3 one or more processors; and
4 a software utility executable on the one or more processors to:
5 establish plural sessions with a database system, each session associated
6 with at least one transaction;
7 identify transactions that operate on the same set of one or more tuples;
8 re-allocate transactions between or among the sessions such that the
9 identified transactions that operate on the same set of one or more tuples is allocated to one of
10 the sessions;
11 ~~a controller adapted to:~~
12 identify first queries of a particular one of the transactions that specify
13 commutative and associative operations, and
14 group the identified first queries into a second query.

1 23. (Original) The system of claim 22, wherein the statements comprises Structured
2 Query Language (SQL) statements.

1 24. (Currently Amended) The system of claim 22, wherein the controller is adapted
2 to send the second query to a database engine of the database system.

1 25. (Currently Amended) The system of claim 24, wherein the controller is adapted
2 to group the identified first queries prior to submitting the second query to the database ~~system~~
3 engine.

1 26. (Currently Amended) The system of claim 22, wherein the ~~first queries are part~~
2 ~~of a first transaction, and wherein the controller is adapted~~ software utility is executable to
3 ~~further~~ group plural transactions into the [[first]] particular transaction.

1 27. (Cancelled)

1 28. (Original) The system of claim 22, wherein the identified first queries comprise
2 statements $\langle t, b_1 \rangle$ through $\langle t, b_m \rangle$, m being greater than 1, where t represents a set of one or
3 more tuples, and b_1 through b_m represent respective modification operations on the set of one or
4 more tuples, and
5 wherein the second query comprises statement $\langle t, c \rangle$, where c represents an
6 aggregation of b_1 through b_m .

1 29. (Original) The system of claim 28, wherein c represents an addition of b_1 through
2 b_m .

1 30. (Original) The system of claim 28, wherein c represents a multiplication of b_1
2 through b_m .